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MINIMUM RATE FIRE INSURANCE

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During the December 1948 meeting of the Western Forestry & Conservation Association at Victoria, B. C., one session was devoted to the slash hazard and to best features of protection during and following logging. Several speakers stressed a method of insurance against damage which is generally overlooked by operators in the Inland Empire.

This method is well illustrated by the practice of Fred Fraser, logging consultant and fire insurance agent of Vancouver, B. C. Mr. Fraser has originated the practice of granting rebates on fire insurance premiums to any logging operation which uses specified procedures for recognizing bad fire days and then also takes specified steps to prevent and control fires on those days. If an insurance company, operating on an actuarial basis, finds that these methods and steps warrant rebates, it is obvious that any logging operator, whether insured or not, can reduce his own chances of loss by using this same method.

There are two conditions which create this opportunity:

1. During most of the year there is little or no fire danger. During that period there is no need of exceptional action for fire prevention and control.

2. Fire danger warranting exceptional and sometimes costly action occurs only on certain days or groups of days during the well known normal fire season. On such days the insurance company finds that IT PAYS to do something.

The action which is being found profitable on the Coast includes three simple and obvious steps:

1. The first need is merely to spot the bad fire days and identify their relative severity. Costly losses have proved that this cannot be left to the camp bosses' judgment.

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2. The second step is to enforce carefully specified requirements which will reduce the number of fires naturally started by men and machines working in the woods. Few operators in the Inland Empire take full advantage of this opportunity.

3. The third and final step is to have available both adequate fire fighting facilities and a trained force of fire fighters pre-organized under experienced supervisory personnel. Most operators are fairly well prepared on this score, although the modern lumberjack has not had the benefit of experience in fighting bad fires which his predecessors had in 1926 to 1934. Consequently, today's lumberjack must be given considerable training in fire fighting if he is to be as effective as the old timers were.

In British Columbia most of the big operators, the Provincial Forest Service, and at least one insurance company are now working together to develop methods of measuring the daily fire danger and from these measurements to determine criteria of low, moderate, and severe burning conditions. At present they are relying primarily on fuel moisture content, as measured with 1/2-inch diameter sticks, and on relative humidity. Measurements are made four times each day beginning in April and continuing until heavy fall rains have occurred. These practices are warranted by the behavior of slash fires on low humidity days, the behavior becoming worse for any specified humidity as the stick moistures drop lower and lower with cumulative drying. It is doubtful if more than two measurements are needed each day in eastern Washington, northern Idaho, and western Montana.

Dctecting Danger

For the northern Rocky Mountain region methods of measuring burning conditions have been tested by widespread use on the national forests since 1931. During these 17 years improvements have resulted in what is now known as a burning index meter which rates this danger on a scale of 1 to 100.

Four factors are employed in rating each fire day:

1. Calender date which indicates both the usual stages of green, curing, and cured vegetation, as well as the length of the fire day -- longest in late June, then becoming so short that by October severe conditions can prevail for only an hour or two each day. Adjustment of the burning index meter for calendar date brings both of these conditions into the rating.

2. Relative humidity as measured at the driest part of the day. This allows for the peak dryness of those fine fuels (weeds and tree moss) which change moisture rapidly in accordance with changing humidity.

3. Fuel moisture content as measured with 1/2-inch diameter sticks. This represents the dryness of the outer skin of wood on snags and windfalls as well as the small branchwood typical of slash areas. This measurement reveals the hang-over effect of recent precipitation and minimizes unnecessary action based on low humidity alone.

4. Wind velocity, which is one of the most feared factors in the Inland Empire.

Use of these four criteria insures identification of bad fire days in the northern Rocky Mountain region. Other factors, such as the moisture content of large logs and the volume of this year's crop of weeds and grasses, have admitted effects. But when the relative humidity drops below 15%, when standard stick moistures are down to 6% or even 5%, and the wind velocity rises above 18 m.p.h. in July or August, a little more or less moisture in the center of snags and windfalls or a little heavier or lighter crop of annual weeds and grasses is of minor significance. Under these conditions slash fires blow up or explode even if the punky logs are wet in the center and even if a heavy crop of fireweed and fern is still green.

Rate of spread of fire will differ, of course, with the amount of slash, its age, the slope, position of the fire on that slope, etc., but the severity of fire days, regardless of the timber or fuel type, can now be measured and rated with more accuracy than can be actually used by most camp bosses, company fire wardens, or other forest protectors. If "bad fire days" mean anything, we know how to spot them. The opportunity in the Inland Empire therefore lies in doing something about it.

The instruments essential for spotting bad fire days are obtainable from standard laboratory supply houses or from the Forest Service. Anemometers, fan psychrometers, fuel moisture indicator sticks, scales, and screens can be purchased by timber protective associations from the Forest Service. The total cost of new equipment for a fire danger station amounts to only $60 to $80. This includes: 1 instrument shelter, 1 fan psychrometer, 1 anemometer, 1 set of fuel moisture sticks with wire screen and brackets, and 1 set of scales for weighing the sticks. Burning index meters, blue prints of cheap instrument shelters, and charts for recording the daily data are furnished to cooperators without charge. Annual costs after initial installation average from $2 to $5 per station, if breakage is nominal. The labor cost varies, of course, with the availability of timekeepers, storekeepers, warehousemen, and others at the logging camp.

One vital feature of this identification of bad fire days was not stressed at Victoria and is often overlooked. This is that the accuracy and therefore the dependability of the measurements made can be no better than the personal interest and knowledge devoted to the job by the camp

boss and by the man or men who make the measurements. The best instruments in the world, used with the best burning index meter available, will fail to provide the desired warnings of fire danger when used carelessly and erroneously. Continual checking and supervision by a competent fire boss are as essential here as on the fire line. No instrument can ever substitute for this.

Prevention and Suppression

Various speakers at the Victoria meeting of the Western Forestry & Conservation Association agreed that the specific steps necessary to prevent fires, and the organization needed to fight those that do start, vary from one region to another, from one logging operation to another, and even from camp to camp, or show to show.

In the white pine, cedar, and fir types of the northern Rocky Mountain region few, if any, special measures are necessary as long as the burning index stays below 25 or 30. When class 50 is measured, however, the moderately bad burning conditions common to July and August must be expected. Fire will then spread rapidly, perhaps uncontrollably through heavy slash, but only moderately in green timber. Under class 50 conditions you can usually control fires when they hit green timber. However, when class 70 is measured, "blow-ups" and "explosions" can be expected in slash, with the fire crowning on through green timber until sunset or later. As far as practical use of the burning index scale is concerned on slash areas, class 70 to 80 represents the extreme in bad fire days beyond which little can be done to control slash fires. When this condition occurs or can be anticipated, complete cessation of logging operations is justified wherever either men or machines are likely to start fires in slash.

From an insurance standpoint such shut-down of logging and use of some of the men on extra detection and as stand-by crews should be a good investment in the northern Rocky Mountain region. During easy fire seasons, like 1948, there would be no shut-downs whatever. During critically dry years, like 1931 and 1934, closures on as many as 15 to 20 days or part-days might occur. But Fraser's records show that the reduced losses of timber, logs, and equipment justify this expense.

The amount of investment in this type of self-insurance which any operation or company should make can be determined only by the policy and sagacity of the company. The occurrence of the next critical fire season in this region is likely to catch many operators not only uninsured but also unprotected even by the minimum rate self-insurance which pre-preparedness of this kind can provide.